5   <u>What is claimed is:</u>

1.   A method for communicating with seven or more terminals in a Bluetooth system

having a master and a plurality of slaves, the method comprising the steps of:

checking an active member address to be allocated to a new slave such that the master

10   establishes a communication connection with the slave;

in case the active member address remains, allocating the remaining active member

address to the slave, and in case the active member address does not remain, calculating a service

delay time to compare the calculated delay time with a predetermined reference value;

in case the service delay time is larger than the predetermined reference value, permitting

15   a call acceptance, and in case the service delay time is smaller than the predetermined reference

value, determining a service sequence with respect to a predetermined reference according to the

number of the slave calculated at a pre-scheduling duration;

allocating a sniff interval time and the active member address to each of the slaves

according to the service sequence, and converting the slave allocated and given the sniff interval

20   time and the active member address to be in a sniff mode; and

waking-up the slave of the sniff mode at the sniff interval time such that the active

member address is used to complete the communication with the master and return the active

member address.

25   2.   The method of claim 1, wherein the service sequence is determined in a sequence

of receiving an access request message.

3. The method of claim 1, wherein data transmission between the master and the slave is such that until the slave given the active member address completes the data transmission, it is activated after the sniff interval time so as to repetitively transmit data.

4. The method of claim 1, wherein the sniff interval time is determined by an equation of $SIT = N * F + N_{th}$, (Here, "N" is the number of slaves intending to communicate with the master at present, "F" is a frame unit as a service sequence of a frame, and "N_{th}" is a slave position in one frame).

5. The method of claim 1, wherein the slave having the service sequence determined is established in the frame unit for data transmission.

6. A method for communicating with seven or more terminals in a Bluetooth system having a master and a plurality of slaves, the method comprising the steps of:

transmitting an access request message from a parked slave to the master so as to establish a communication connection therebetween;

receiving the access request message so as to calculate the number of the parked slave and determine a service sequence with respect to a predetermined reference;

allocating an active member address according to the service sequence so as to establish the communication connection, and maintaining a non-connection slave to be in a sleep state in a sniff mode; and

waking-up the slave of the sniff mode at the sniff interval time such that the active member address is used to complete data transmission with the master and return to a parking mode.

7. The method of claim 6, wherein the step of transmitting the access request message from the parked slave is performed by a slotted collision sense multiple access (CSMA) way.

8. The method of claim 6, wherein the step of transmitting the access request message from the parked slave is performed by a time division multiple access (TDMA) way.

9. The method of claim 6, wherein data transmission between the master and the slave is such that un-parked slaves are all established in a frame and data is transmitted in a frame unit.

10. The method of claim 6, wherein the service sequence is determined prioritizing the slave not completing the communication for a beacon interval duration earlier.

11. The method of claim 6, wherein the non-connection slave is given a sniff interval time and an active member address at a pre-scheduling duration.

12. The method of claim 6, wherein data transmission between the master and the slave is such that after all of the slaves transmitting the access request message are un-parked, the un-parked slaves are established in the frame and all of the slaves transmit data by one time.

13. The method of claim 6, wherein the service sequence is determined in a sequence of receiving the access request message.

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14. The method of claim 6, wherein data transmission between the master and the slave is such that until the slave given the active member address completes the data transmission, it is activated after the sniff interval time so as to repetitively transmit data.

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15. The method of claim 6, wherein the sniff interval time is determined by an equation of $SIT = N * F + N_{th}$, (Here, "N" is the number of slaves intending to communicate with the master at present, "F" is a frame unit as a service sequence of a frame, and "N_{th}" is a slave position in one frame).

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16. The method of claim 6, wherein the slave having the service sequence determined is established in the frame unit for data transmission.

17. An apparatus for communicating with seven or more terminals in a Bluetooth system having a master and a plurality of slaves, the apparatus comprising:

20   a transceiver for transmitting and receiving a signal between the master and the slave;

a parking mode controller for analyzing the signal received from the transceiver so as to control the number of a parked slave, a data type and the number of packet, and a parameter necessary for a parking mode;

a pre-scheduling unit for analyzing the signal received from the transceiver so as to

25   determine a service sequence, a sniff interval time and an active member address; and

a controller for controlling the parking mode controller, the transceiver and the pre-scheduling unit such that the slave is activated according to the service sequence so as to perform the communication.

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18.   The apparatus of claim 17, wherein the pre-scheduling unit automatically varies a

packet depending on a data throughput communicating with the slave.

19.   The apparatus of claim 17, wherein the parking mode controller controls

10   parameters of the number of a beacon slot, the number of an access window, and the number of a

slot per a window.